Editor's note: Appealed – aff'd, Civ. No. 73-119 (D.Ariz. Sept. 24, 1974)

UNITED STATES
v.
ETHEL SCHELL LARSEN AND
MINERALS TRUST CORPORATION

IBLA 70-8 Decided February 2, 1973

Appeal from decision (Arizona Contest No. 10435) of the Bureau of Land Management affirming a decision of Hearing Examiner 1/ Paul A. Shepard declaring mining claims null and void.

Affirmed.

Mining Claims: Discovery: Generally

To constitute a discovery on a lode mining claim there must be physically exposed within the limits of the claim a lode or vein bearing mineral of such quality and in such quantity as to warrant a man of ordinary prudence in the expenditure of his labor and means, with a reasonable prospect of success, in attempting to develop a valuable mine; it is not enough to show that the exposed mineralization is sufficient to warrant holding a claim with a reasonable hope that at some time in the future the land embraced therein may become valuable for mining.

Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

In determining whether a deposit of ore is a valuable deposit within the meaning of the mining laws, consideration may properly be given to whether a prudent man could reasonably expect to develop a valuable mine in the reasonably foreseeable future where such expectation is based upon economic circumstances which are rationally predictable from presently known facts and not upon mere speculation with respect to possible substantial, but unpredictable, changes in economic conditions or dramatic technological breakthrough; it is not enough, however, to show that, because of increasing demand for a mineral and the depletion of known ore reserves, the market price of

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1/ The title "Administrative Law Judge" has replaced that of "Hearing Examiner" by order of the Civil Service Commission, 37 F. R. 16787 (August 19, 1972).

that mineral seems certain to rise where it is not shown that the foreseeable rise in the price of the mineral is, by itself, a substantial enough factor to make the development of a mine appear to be economically feasible.

Mining Claims: Determination of Validity--Mining Claims: Discovery: Generally

Where there has been an actual finding of a mineral deposit within the limits of a designated mining claim, geologic inference may be relied upon to establish the extent and potential value of a particular mineral deposit.

Mining Claims: Mill Sites

A mill site that is not being used or occupied for a milling or mining purpose and on which there is no mill is properly declared invalid; neither the fact that it is intended to use it for such purposes in the future nor the fact that it may have been so used in the past is sufficient to validate the location where it is not associated with a valid mining claim.

APPEARANCES: Charles E. Marshall, Esq., Phoenix, Arizona, Hale C. Tognoni, Esq., Phoenix, Arizona, for contestee; Richard Fowler, Esq., Office of the General Counsel, United States Department of Agriculture, Albuquerque, New Mexico.

OPINION BY MR. RITVO

Ethel Schell Larsen and Minerals Trust Corporation have appealed to the Secretary of the Interior from a decision dated June 24, 1968, whereby the Office of Appeals and Hearings, Bureau of Land Management, affirmed a decision of a Hearing Examiner rejecting Mrs. Larsen's application for patent to the Red Bluff Nos. 4, 5 and 6 lode mining claims and the Red Bluff Nos. 1 and 2 mill site claims in the Tonto National Forest, Gila County, Arizona, and declaring the mining claims and the mill sites null and void. 2/

2/ The relationship between the appellants in prosecuting this appeal is not entirely clear. Ethel Schell Larsen was the only owner named in the application for patent and was the sole contestee in the adverse proceedings subsequently initiated. On December 7, 1967, after Mrs. Larsen had filed notice of her appeal to the Director, Bureau of Land Management, from the decision of the Hearing Examiner, Minerals Trust Corporation filed a request for time to file an additional memorandum of grounds and reasons for appeal, submitting in support of that request a memorandum of an agreement entered into on November 11, 1967, whereby the corporation was to purchase the mining claims and

The record shows that the claims in question, which are situated about 35 miles northwest of Globe, Arizona (I Tr. 16), 3/ were located by Mrs. Larsen during the years 1950-1951. On June 25, 1959, Mrs. Larsen filed her application, Arizona 021808, for patent to the claims, alleging that the lode claims contain well-defined veins and deposits of minerals consisting chiefly of uranium and that the mill sites were located for and are being used in connection with mining operations on the lode claims.

Upon the recommendation of the Forest Service, United States Department of Agriculture, a contest complaint was filed in the Arizona Land Office on April 4, 1961, in which it was charged that:

a. A valid discovery of mineral, as required by the mining laws of the United States, does not exist within the limits of Red Bluff Nos. 4, 5, and 6 lode mining claims.

b. The land embraced within the limits of said lode mining claims is nonmineral in character.

c. The Red Bluff Nos. 1 and 2 millsites are not being used for mining or milling purposes.

A hearing on those charges was held at Phoenix, Arizona, on February 27, 1963, and, from the evidence developed at that hearing, the Hearing Examiner concluded, in a decision dated October 22, 1963, that no discovery of a valuable mineral deposit had been made on any of the three mining claims and that the two mill sites were not being used or occupied for milling or mining purposes. That determination was sustained by the Office of Appeals and Hearings, Bureau of Land Management, in a decision dated June 2, 1964. However, upon appeal to the Secretary, the Department, in a decision dated September 13, 1965 (United States v. Ethel Schell Larsen, A-30328), found the evidence of record to be inadequate to justify any conclusion with

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fn. 2 (Cont.)
the mill sites from Mrs. Larsen. On August 19, 1968, a notice of appeal to the Secretary from the Bureau's decision of June 24, 1968, was filed in the names of Mrs. Larsen and Minerals Trust Corporation, and, on the same date, Mrs. Larsen filed a separate notice of appeal. Thereafter, separate statements of reasons for the appeal were filed by the respective parties.

For purposes of reviewing the merits of the case, the parties are deemed to be joint appellants.

3/ References to testimony given in 1963 are identified herein as "I Tr.," and references to testimony given in 1966 are identified as "II Tr."

respect to the validity of the mining claims, and the case was remanded to the Bureau of Land Management for further hearing.

The decision observed that it seemed to be agreed that uranium ore was mined and sold from the claims during the years 1953 to 1955 and, possibly, in 1956, 4/ and that, apparently, it was not questioned that, at least in the past, a discovery of uranium had been made on the claims. The issue presented, it was explained, was whether the claims had become invalid because of exhaustion of the uranium ore or because of changes in economic conditions which had rendered the ore no longer of value or a combination of both. It was concluded that, in order to decide the case properly, evidence was needed as to the probable amount of uranium ore in each claim, the quality or grade of the ore, the existence of a present or reasonably prospective market for the ore on the claims, that evidence as to the current buying program of the Atomic Energy Commission or purchases by others would be relevant, and that evidence as to the mode of occurrence of uranium on the claims might also be relevant to a determination of the size of the ore bodies in the claims. For the purpose of obtaining this evidence, a hearing was held at Prescott, Arizona, on November 2 and 3, 1966.

From the evidence developed at the 1966 hearing, the Hearing Examiner found, in a decision dated October 2, 1967, that there had been shown to exist on the three mining claims 286.7 tons of ore

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4/ The mining claimant stated in her application for patent that, during the year 1953, she mined and sold from the Red Bluff No. 5 claim approximately 500 tons of uranium ore for which she received $29,000, approximately $58 per ton, and that, during 1954, Sierra Ancha Mining Company mined and shipped from the Red Bluff Nos. 5 and 6 claims approximately 2,000 tons of ore for $60,000, or $30 per ton. At the 1963 hearing the Government introduced evidence that 2,512.97 tons of ore from the claims were delivered to the Atomic Energy Commission buying station at Bluewater, New Mexico, during fiscal years 1953 to 1956 and that 872.09 tons were delivered in fiscal year 1956 to the buying station at Globe, Arizona (Ex. 21). The claimant questioned the accuracy of some of the figures submitted in evidence by the Government, asserting that "they [Sierra Ancha Mining Company] could not have shipped and I did not ship" any ore after 1955 (I Tr. 123-124). This statement is not necessarily inconsistent with the Atomic Energy Commission records, inasmuch as ore delivered to buying stations in fiscal year 1956 may well have been delivered during calendar year 1955. It may be fairly concluded, in any event, that at least 2,500 tons of ore were mined and shipped from the Red Bluff claims between 1953 and 1956.

containing at least .4 percent U_3O_8 and 33,000 tons of ore containing .21 percent U_3O_8. The 33,000 tons of low-grade ore, he found, could not be considered to be commercial ore unless it were shown that it could be processed and sold at a profit. The shipping costs, he further found, would be too great to permit the realization of a profit if the ore had to be shipped to one of the present mills, and, while there was a possibility of a profit if the ore could be processed at the mine, the claimant had failed to make any leaching tests to determine how successful processing of the ore at the mine site would be. He concluded that the 286.7 tons of high-grade ore (.4 percent U_3O_8 or better) constituted an insufficient quantity to warrant the construction of a mill on the mill site, that, in the absence of a showing that the 33,000 tons of low-grade ore could be successfully leached, that ore could not be classified as a valuable mineral deposit, and that the mining claims were therefore invalid for lack of a discovery of a valuable mineral deposit. With respect to the two mill site claims, he found that no evidence had been presented that the mill sites had ever been used for milling purposes, and he declared them, also, to be invalid.

In affirming the decision of the Hearing Examiner, the Office of Appeals and Hearings found that the Hearing Examiner had properly concluded that there are 286.7 tons of .4 percent material and 33,000 tons of .21 percent material on the claims and that the testimony given at the hearing was too conjectural to establish a reasonable expectation of a profitable operation in the reasonably near future. It found it to be clear from the evidence that, at the time of the hearing, the claimant did not contemplate the development of a mine in the foreseeable or reasonably near future and that the land is merely being held forspeculative purposes with the hope that the mineral deposits occurring therein may someday be valuable. The best that can be said of the evidence, the Office of Appeals and Hearings stated, is that the claimant may be warranted in following the exploratory procedures suggested by her consultants in the hope of establishing that a mineral deposit sufficient to support a valid discovery does exist on one or more of the claims. Such evidence, it held, does not demonstrate a discovery. Noting that the Department had already found in its decision of September 13, 1965, supra, that no evidence at all was produced at the first hearing that the mill sites were being used for mining or milling purposes, the Office of Appeals and Hearings found that the only evidence relating to the mill sites produced at the second hearing was testimony that they would be needed in connection with the proposed processing of ore at the mining site. Pointing out that a mill site, in order to be valid, must be used in conjunction with a valid mining claim unless it has thereon a quartz mill or reduction works and that the intent to use public land for mining or milling purposes at a future date is not sufficient to validate a mill site location, it con luded that the validity of the Red Bluff Nos. 1 and 2 mill sites had not been established.

In appealing to the Secretary, appellants challenge the standard of discovery that has been employed in this case. There can be no doubt, appellants argue, that "the Hearing Examiner and Director are implementing Bureau of Land Management policy notions that the requisite discovery of mineral to make a claim valid is not proven unless the locator proves that he will in fact develop a profitable mine." Noting the Bureau's reliance upon the decision of the Supreme Court in the case of United States v. Coleman, 390 U.S. 599 (1968), as authority for its conclusions, appellants contend that the Coleman case was concerned with a nonmetallic mineral and that the Court's pronouncement with respect to the necessity of demonstrating the economic value of a mineral deposit 5/ is obiter dicta and is not binding precedent for the proposition that the marketability test is applicable to metallic minerals. Asserting that "the Ninth Circuit has made a radical departure from the American mining law by stating [in Converse v. Udall, 399 F.2d 616 (1968), cert. denied, 393 U.S. 1025 (1969)] that the marketability test is applicable to all mining claims," appellants argue that Converse nonetheless "clearly demonstrates that a challenged mining claimant still does not have to prove that he will in fact develop a profitable mine to establish a valid discovery of a metallic mineral." (Emphasis in original.) Appellants further contend that the marketability rule had no applicability to uranium claims prior to the Converse decision and that "the Hearing Examiner's and the Director's decisions of no discovery based on marketability factors are erroneous and should be reversed."

Appellants also charge that the Government failed to make a prima facie case of no discovery on the Red Bluff Nos. 4, 5 and 6 mining claims, asserting that neither of the two expert witnesses who testified on behalf of the contestant possessed the "skill, background or knowledge that would entitle them to give expert opinion as to what a prospector of ordinary prudence would or would not do in attempting to develop a uranium mine," as required in Snyder v. Udall, 267 F. Supp. 110 (D.C. Colo. 1967). When the testimony of the Government's witnesses is weighed "against the considered opinion of well-trained geologists of the A.E.C.," appellants argue, "it cannot reasonably be contended that the Contestant

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5/ "* * * Under the mining laws Congress has made public lands available to people for the purpose of mining valuable mineral deposits and not for other purposes. [Footnote omitted.] The obvious intent was to reward and encourage the discovery of minerals that are valuable in an economic sense. Minerals which no prudent man will extract because there is no demand for them at a price higher than the cost of extraction and transportation are hardly economically valuable. Thus, profitability is an important consideration in applying the prudent-man test * * *." 390 U.S. at 602.

has established a prima facie case of no discovery." Under the most stringent rule of proof that could be applied, appellants reason, the contestee would be justified in the further expenditure of her labor and means in developing a mine, and she would, in fact, be imprudent if she did not invest more labor and means to mine the 33,000 tons of ore containing .21 percent U_3O_8 and the more than 286.7 tons of ore containing .4 percent U_3O_8.

Appellants reassert the validity of the two mill sites on the basis of their past use as living quarters for a base camp to develop and maintain 13 mining claims, for a repair shop and storage building complex for the protection of mining tools and mining equipment and for a water reservoir to facilitate use of the shop site and bunkhouse and upon the basis of future needs of a site for a milling and leaching plant for the processing of ore to be taken from the mining claims.

Two basic questions are raised on this appeal: (1) What is the test of discovery for a mining claims located for uranium? (2) Was that test properly applied to the facts of this case?

We have no quarrel with appellants over the proposition that a mining claimant is not required to prove that he will in fact develop a valuable mineral deposit. However, in attacking that standard, appellants are attempting to destroy a straw man of their own making, for we do not find that such a test was employed by either the hearing examiner or the Office of Appeals and Hearings. Moreover, in challenging the applicability of the marketability test to metallic minerals, appellants have revealed a serious misunderstanding of the applicable law.

As has been pointed out on past occasions, the Department does not require amining claimant to prove the discovery of a valuable mineral deposit by showing that he is actually engaged in profitable mining operations or even that profitable operations are assured. What it does require is a showing of a reasonable prospect of profit which is sufficient to induce a reasonable man to expend his means in attempting to reap that profit by extracting and marketing the mineral. United States v. Henrietta Bunkowski and Andrew Julius Bunkowski, 5 IBLA 102, 79 I.D. 43 (1972). A distinction is made between that evidence of value which will induce a man to exploit the mineral wealth of land and that which will entice him to invest his money only in gaining control over land in the hope or expectation that at a future date the land will become valuable for the minerals which it contains. Only the former constitutes evidence of a discovery. United States v. Wayne Winters d/b/a Piedras Del Sol Mining Company, 2 IBLA 329, 78 I.B. 193 (1972); United States v. Warren E. Wurts and James E. Harmon, 76 I.D. 6 (1969); United States v. W. S. Pekovich, A-30868 (September 27, 1968). This view, that

the "prudent man" test of Castle v. Womble, 19 L.D. 455 (1894), is a test of practical economic value of land for mining purposes, was given express judicial sanction in the Coleman and Converse cases, supra. Thus, it was stated in United States v. W. S. Pekovich, supra, after citing the language of Coleman set forth at footnote 4, supra, that:

> This principle is applicable to all minerals. A deposit of gold which cannot be mined for a cost less than the market value of the gold which it will yield is not a "valuable deposit". The same may be said of a deposit of iron ore or of building stone or of any other mineral. [Citations omitted.] This is the essence of the "prudent man" test of Castle v. Womble [supra], uniformly accepted since its pronouncement as the criteria for determining whether or not a discovery of a valuable mineral deposit has been shown. In this sense, a test of "marketability" is applied to all minerals.

Appellants' attempt to limit applicability of the principles set forth in Converse v. Udall, supra, to cases arising subsequent to the court's decision in that case is without merit. In United States v. E. A. Barrows and Esther Barrows, 76 I.D. 299 (1969), aff'd United States v. Barrows, 447 F.2d 80 (9th Cir. 1971), a similar argument was rejected that the "marketability test" approved by the Supreme Court in the Coleman case, supra, was a new rule or statement of policy which had to be published in the Federal Register before it could become effective. The obvious fallacy in the reasoning of the appellants, here as in Barrows, lies in their overlooking of the fact that the courts, in both Coleman and Converse, simply approved prior departmental interpretation of the law. In effect, they held that the interpretation urged now by appellants never was the law. Thus, there is no question here of whether or not a ruling is to be applied only prospectively.

A further application of the "marketability test" is employed in the case of minerals, usually nonmetallics, of fairly abundant occurrence. In the case of gold, silver, or some other mineral of limited occurrence for which the supply has never exceeded the demand, the marketability of the mineral is presumed. The only question in such case is whether the evidence is persuasive that there is a reasonable prospect that the value of the gold, or other mineral, found on a mining claim will exceed the cost of its extraction by an amount sufficient to justify an attempt to extract it. With a more abundant mineral, however, for which there is a limited market, it may well be that the mineral, even if produced at a cost which is less than the current market price of the mineral, is not marketable because the market is fully satisfied from

other sources. In the case of such a mineral, a mining claimant is required to show that by virtue of the quality of the material found on his claim, its proximity to a market, or some equally cogent factor, the claimant would be able to capture a share of the market for that mineral. United States v. J. R. Osborne et al., 77 I.D. 83 (1970), aff'd Osborne v. Morton, Civil No. L.V. 1564 (D. Nev. filed March 1, 1972). This so-called "marketability test" is nothing more than an aid in determining the ultimate question, which is the same whether the mineral involved be gold or limestone, that is, whether the prospect of developing a valuable mine is sufficient to induce a man of ordinary prudence to invest money and effort toward that end. It is not necessary to consider whether or not the more specific "marketability test," as explained here, is applicable to uranium unless it is first established that, assuming the marketability of the product, appellants would be justified in attempting to mine uranium from the Red Bluff claims. 6/

Having determined the standard by which the claims are to be judged, we may now apply that standard to them. First we dispose of appellants' objection to the qualifications of the Government's witnesses "to testify as to what a prudent prospector would or would not do in attempting to develop a uranium mine." The decision in the Snyder case, supra, upon which appellants rely as authority for their objection, was reversed by the United States

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6/ According to the contestee's witness, J. W. Still, a partner in the consulting firm of Still and Still, there was, in 1966, no open market price for uranium except the price which might be negotiated between buyer and seller, and all sales of uranium, not made under contract with the Atomic Energy Commission, had to be approved by the Commission (II Tr. 163-164). The price of uranium under such sales contracts, at the time of the 1966 hearing, ranged from about $4 to the vicinity of $6 per pound of U_3O_8 (II Tr. 150-152, 156-157; Ex. E-E).

According to a letter dated April 6, 1966, from the Grand Junction, Colorado, office of the Atomic Energy Commission, the Red Bluff Nos. 3-6 mining claims property unit was "eligible for a 10,000 pound U_3O_8 in ore market in each 6 month period beginning January 1 and July 1 during calendar year 1966 subject to an overall limitation of 1,000,000 pounds per year for all small property units," the purchase price for acceptable uranium concentrate derived from ores produced from such property having been set at $8 per pound through December 31, 1968. Total production of U_3O_8 from the small property units averaged 770,000 pounds per year for the period 1959-61 (Ex. 24). For purposes of this case, we shall assume that appellants, at the time of the hearings, as well as at the present time, could negotiate the sale of any uranium which they might produce at the prevailing market price.

Court of Appeals for the Tenth Circuit in Udall v. Snyder, 405 F.2d 1179 (1968), cert denied, 396 U.S. 819 (1969), the court expressly finding that the Government's witnesses in that case were competent to testify as experts with reference to the prudent man test. The fact is, of course, that it is the trier of fact, not the expert witnesses, who must determine from the totality of the evidence what a man of ordinary prudence would or would not be justified in doing with respect to a particular mining claim. The trier of fact is, quite naturally, strongly influenced by the testimony of experts as to the prospects of successful development of the property, but if he is not persuaded by the evidence as a whole that an attempt to develop a valuable mine is justified, he is not obligated to accept the opinion of a witness, however well qualified as a mining expert, that a man or ordinary prudence would be justified in making such an attempt. See United States v. Taylor T. Hicks et al., A-30780 (October 24, 1967), aff'd in Hicks v. Udall, Civil No. 1202 Pct., in the (D. Arizona, filed March 26, 1970); United States v. Evelyn M. Kiggins et al., A-30827 (July 12, 1968).

It is fairly clear that appellants' objections to the testimony of the Government's witnesses in this case go to the weight that should be given that testimony rather than to the admissibility of the testimony. Whether or not, as appellants contend, "the testimony of non-geologists Mr. Ashby and Mr. Pardee" is far outweighed by "the considered opinion of well-trained geologists of the A.E.C." is immaterial in determining whether the Government established a prima facie showing of no discovery. The question is whether the testimony of the Government's witnesses, if standing by itself, unchallenged and unrefuted, would warrant the conclusion that there had been no discovery of a valuable mineral deposit on any of the claims in question. How that testimony looks in the light of the testimony of expert witnesses for the opposing party relates solely to the question of whether the contestee has demonstrated a discovery by a preponderance of the evidence. Cf. Foster v. Seaton, 271 F.2d 836 (D.C. Cir. 1959). Appellants do not suggest that the testimony of the Government's witnesses, if accepted at face value, would not warrant the conclusion that a discovery had not been made, and we have no difficulty in finding that the contestant did make a prima facie showing of no discovery.

With this we turn to an examination of the factual evidence developed at the hearings.

The record shows that uranium ore has been exposed in two areas on the claims, a "west block," consisting of workings on the Red Bluff Nos. 5 and 6 claims, and an "east block," consisting

of workings on the Red Bluff Nos. 4 and 6 claims. 7/ The two blocks are separated by Warm Creek Canyon, which cuts through a diabase dike approximately 150 feet wide (I Tr. 22-24; Ex. 13). Most, if not all, of the ore sold from the claims was taken from the west block (see Ex. X-1; I Tr. 109).

Analyses of mineral samples taken from the workings on the claims by both parties, and submitted in evidence, revealed quantities of uranium ranging from .007 percent to .81 percent U_3O_8. However, the principal evidence utilized by both parties to the contest was taken from data developed between 1955 and 1957 by geologists employed by the Atomic Energy Commission, and the samples taken in preparation for these proceedings were for the purpose of substantiating, or aiding in the interpretation of, the results of the Atomic Energy Commission testing. The differences in the opinions of expert witnesses who testified for the contestant and those who testified for the contestee are attributable primarily to differences in their interpretation of the findings of the Atomic Energy Commission.

From the available test data, 8/ Atomic Energy Commission geologists calculated the ore reserves in the Red Bluff claims as follows (Ex. X-1):

7/ The Red Bluff Nos. 4 and 5 claims are adjacent, the east side line of the Red Bluff No. 5 and the west side line of the Red Bluff No. 4 constituting a common boundary running in a northeast-southwest direction. The Red Bluff No. 6 claim lies to the northeast of the other claims, its south side line running along, and slightly overlapping, the north end lines of both of the other claims (Ex. 1).

8/ The basic data utilized by the Atomic Energy Commission, that is the location of drill holes, the results of drilling, and the delineation of ore bodies, is reflected in the exhibits submitted in evidence by the respective parties (see Exs. 13-15, 28, 30, 31, C, X, X-2, Z, S-S and V-V). The precise basis for the computation of ore reserves by the Atomic Energy Commission is not disclosed. According to a letter dated August 11, 1966, from the Grand Junction office of the Atomic Energy Commission to Arthur R. Still, one of the contestee's expert witnesses (Ex. Y-Y), it was stated in a memorandum that "company data, radiometric mine wall scanning, and some chemical assays were used" in the computation of ore reserves, but the Commission did not at that time have "the detailed sample information" which was used in the calculations.

	Indicated Ore	Inferred Ore	Total Ore
West Block	714 tons at .27%	372 tons at .16%	1,086 tons
East Block	26,601 tons at .21%	5,542 tons at .18%	32,143 tons
Total Ore	27,315 tons at .21%	5,914 tons at .18%	33,229 tons 9/

9/ The Atomic Energy Commission ore reserve estimate was broken down by the contestee's witness, Arthur R. Still, according to claims as follows (Ex. U-U):

Claim	Indicated Ore	Inferred Ore	Total
Red Bluff No. 4	11,466 tons at .243%	3,052.5 tons at .197%	14,518.5 tons at .233%
Red Bluff No. 5	306 tons at .25%		306 tons at .25%
Red Bluff No. 6	15,543 tons at .192%	2,861.5 tons at .161%	18,404.5 tons at .182%

The Atomic Energy Commission, according to Still, classifies ore reserves into four groups--"measured," "indicated," "inferred" and "potential" ore (II Tr. 348).

"* * * 'Measured ore is ore from which tonnage is computed from dimensions revealed in outcrops, trenches, workings, and drill holes and for which the grade is computed from the results of detailed sampling. The sites for inspection, sampling and measurement are so closely spaced and geologic characters so well defined that the size, shape and mineral content are well established. The computed tonnage and grade are judged to be accurate within limits which are stated and no such limit is judged to differ from the computed tonnage ore grade by more than 20 percent.

"* * * 'Indicated ore is ore from which figures for tonnage and grade are computed partially from specific measurements, samples, or production data and partially from projection for a reasonable distance on geological evidence. The sites available for inspection, measurements and sampling are too widely spaced or otherwise inappropriately spaced to outline the ore completely or to establish its grade throughout.

"* * * 'Inferred ore is ore for which quantitative estimates are based largely on broad knowledge of the geologic character of the deposit and for which there are few, if any, samples or measurements. The estimates are based on assumed continuancy or repetition for which there is geologic evidence. This evidence may include comparison with deposits of similar type. Bodies that are completely concealed may be included if there is specific geologic evidence of their presence. Estimates of inferred ores should include a statement of the special limits within which the inferred ore may lie.

"* * * 'Potential ore is unexplored extensions beyond inferred ore, or in undiscovered ore bodies, the probable existence of which is deducted from study of local and regional geology and statistics. Estimates of tonnage are obtained by comparing explored areas with areas having similar geologic environment that have been explored or developed.'"

Expert witnesses for the contestee accepted the Atomic Energy Commission computation as an accurate estimate of the ore reserves found on the claims. John E. Kinnison, a geologist who participated in the development of test data and the mapping of ore reserves in the east block of the claims for the Commission, testified that, to the best of his knowledge, the ore reserve figures, as indicated on a map of the ore reserve sections in the east block prepared in 1957 (Ex. X-2), depicted what he knew as a result of his "examination of the claim and drill holes dug" (II Tr. 78). Kinnison also stated that the estimates of ore reserves depicted on the map were more conservative than the estimates which he would make today from the same test data (II Tr. 81-82, 85-86). J. W. Still stated that there was no question in his mind "that the ore reserve section of the Grand Junction operation [of the Atomic Energy Commission] did a magnificent job" and that the ore reserves they came up with were, as far as he was concerned, "as close to the mark as anybody can come up with" (II Tr. 147). J. David Lowell, a consulting geologist and mining engineer, stated that he would consider the Atomic Energy Commission ore reserve figures to be "first-class data as far as accuracy for the situation is concerned," that the Government figures "are generally put together on the basis of wider spread drilling than detailed drilling done by a mining company to outline an ore body," but that the 20-foot spacing of drill holes in this instance "is much closer spacing than is almost ever used in mining exploration" (II Tr. 188-189). The contestee's witness, Arthur R. Still, a consulting geologist, stated that he accepted the Atomic Energy Commission ore reserve figures completely, although he thought that they were somewhat conservative in the assignment of tonnages of inferred ore in the case of the west block (II Tr. 331, 357).

In addition to the ore reserves calculated by the Atomic Energy Commission, Arthur R. Still estimated that there are between 200,000 and 400,000 tons of potential, low-grade uranium ore on the claims. Using figures between the maximum and minimum that might be expected, he offered 300,000 tons of .065 percent ore as a reasonable estimate of the potential tonnage of low-grade ore that may occur on the claims (II Tr. 132-133).

Witnesses for the contestant took quite a different view of the Commission's figures. Jack McK. Pardee, a mining engineer employed by the Forest Service, stated that it would be risky, in this instance, to project the values indicated by probe assays of drill holes from one hole over a distance of 20 feet to the next (II Tr. 51-52). Pardee accepted the probe results of the drill holes, but he did not accept the determination of ore bodies made from those results, the calculation of ore bodies, in his opinion, having been made upon the basis of criteria no longer accepted by

the Commission (II Tr. 224-225). In support of his views, he submitted a report of a re-evaluation of the test data relating to the east block made by the Atomic Energy Commission in 1960 (Ex. 41, II Tr. 219-224). Pardee also believed that all of the exposed ore in the west block of the claims, except very small pods, had been mined out (II Tr. 211), "ore," in his view, being only material which contained at least .4 percent U_3O_8 (I Tr. 47; II Tr. 35, 62-64, 225-226).

The Government's second witness, Harve I. Ashby, also a mining engineer employed by the Forest Service, took a somewhat different view of the Commission's computation of ore reserves, refusing to accept the probe results of drill holes (II Tr. 312-315). In his opinion the 15,543 tons of indicated ore on the Red Bluff No. 6 claim (see Ex. U-U) simply are not there (II Tr. 308). Like Pardee, Ashby considered .4 percent U_3O_8 to be the minimum quality ore that could be economically mined from the Red Bluff claims and shipped to the nearest mill for processing (II Tr. 274-275). He acknowledged, however, that .2 percent ore could be successfully mined if it could be milled at the mining site (Id.).

Utilizing the test data developed by the Atomic Energy Commission, in light of the results of their own sampling of the workings on the claims, Pardee and Ashby calculated the mineable reserves on the three claims to be 286.7 tons of ore (Exs. 33, 43; II Tr. 55-62, 277-286). 10/ In the opinions of the witnesses, the evidence of mineralization would not justify the expenditure of any more time and money in an effort to develop a paying mine (I Tr. 45-47, 74; II Tr. 65-66).

Although the ore reserve estimates of witnesses for the respective parties appear on their face to be irreconcilable, the differences are probably not as great as they first seem. As the contestant pointed out in its brief to the hearing examiner:

> * * * The nature of the testimony by Pardee and Ashby shows that they are talking about what the AEC calls "measured ore" and that they are unwilling to consider

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10/ The hearing examiner's statement in his decision of October 2, 1967, that the ore reserve, as computed by witnesses for the contestant, would amount to "only 286.7 tons of ore having a grade of .40 percent U_3O_8" was not fully in accord with the evidence, the 286.7-ton estimate having included 127 tons of ore in the Red Bluff No. 5 claim with an average U_3O_8 content of .21 percent and 22.7 tons in the Red Bluff No. 6 with an average content of .26 percent U_3O_8 (II Tr. 63-64, 284-285; Exs. 33, 43).

> either indicated, inferred, or potential ore as applicable to a decision on whether there is a valid mineral discovery * * *. Contestee does not assert that there is any particular quantity of "measured ore" on the claims. * * * There are only two categories of reserves thereon, indicated and inferred. * * * p. 4

The Hearing Examiner purported to accept the contestant's view as to what constitutes evidence of a discovery, finding that "indicated ore" and "inferred ore," as defined by the Atomic Energy Commission through the testimony of Arthur Still, "may be described as geologic inference" and that it is not proper to consider these elements in determining the probable amount of ore on each claim. He then found that the "measured ore" on the claims, that is, "ore that is known to exist," included "not only the ore of a grade of .40% of higher but also a 33,000 ton ore reserve having a grade of .21% U_3O_8."

The Hearing Examiner's findings are somewhat incongruous, for, in effect, he found that the existence of 33,000 tons of .21 percent ore was proven by evidence which he refused to accept. In fact, it was never contended that the 33,229-ton ore reserve computed by the Atomic Energy Commission constituted "measured ore." The 33,229 tons, as we have already seen, were clearly reported to consist of "indicated" and "inferred" ore. In other words, the 33,229-ton figure is an estimate based upon incomplete test data. It might well be concluded that the testimony of the contestee's witnesses (that the Atomic Energy Commission's estimate is reliable) is more persuasive than the testimony of the contestant's witnesses (that it is not). However, general agreement by experts, or even unanimous agreement, cannot convert an estimate into a measurement.

As the contestant indicated in its brief to the Hearing Examiner, the contestant's witnesses, although they questioned the reliability of the Commission's computations, did not attempt to establish the quantity, or the quality, of "indicated" and "inferred" ore on the claims, and witnesses for the contestee did not concern themselves with the question of how much "measured" ore there is on the claims. The question at this point is not so much whose testimony is to be given greater credibility as it is whether estimates of "indicated" and "inferred" ore, as defined earlier, are acceptable as evidence of a discovery of a valuable mineral deposit.

As the Hearing Examiner properly observed, geologic inference cannot be accepted as the equivalent of discovery. That is, in order to demonstrate the discovery of a valuable mineral deposit on a lode mining claim, there must be physical exposure within the limits of the claim of a lode or vein bearing mineral of such quality and in such quantity as to invite the expenditure of money and

effort which we have previously discussed. If there is not such an exposure, no showing, regardless of the strength of the evidence, of the likelihood of the existence of a valuable ore body will suffice to demonstrate a discovery. See, e.g., United States v. Henault Mining Company, 73 I.D. 184 (1966); aff'd in Henault Mining Company v. Tysk, 419 F.2d 766 (9th Cir. 1969), cert. denied 398 U.S. 950 (1970); United States v. Kenneth O. Watkins and Harold E. L. Barton, A-30659 (October 19, 1967). 11/ However, the Department has never required a mining claimant to prove conclusively the quantity or the quality of the ore present on a claim, and it has not held geologic inference to be without value as evidence of a discovery. While geologic inference may not be relied upon to establish the existence of a mineral deposit, it may be accepted as evidence of the extent of a deposit. That is, where ore has been found, the opinions of experts, based upon knowledge of the geology of the area, the successful development of similar deposits on adjacent mining claims, deductions from established facts–in short, all of the factors which the Department has refused to accept singly or in combination as constituting the equivalent of a discovery–may properly be considered in determining whether ore of the quality found, or of any mineable quality, exists in sufficient quantity to justify a prudent man in the expenditure of his means with a reasonable anticipation of developing a valuable mine. United States v. Kenneth O. Watkins and Harold E. L. Barton, supra; United States v. Frank Coston, A-30835 (February 23, 1968). 12/

In the case before us, it is undisputed that ore bodies have been exposed on the mining claims. The computations of "indicated ore" and "inferred ore" were, by definition, estimates derived from the projection of test data over what were considered to be reasonable distances upon the basis of geologic evidence. In differing degrees, geologic inference has been utilized in both computations, but it is inference of the type which in some circumstances has been held acceptable. Since the decision in the case does not depend on whether the "inferred ore" is deemed acceptable, we reserve judgment

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11/ Harold E. L. Barton v. Stewart L. Udall, Civil No. 69-26 (D.C. Oregon, filed March 17, 1971), appeal pending.

12/ In the Watkins, Barton case, as well as in the Coston case, unlike the Henault case, supra, there was an exposure of a mineral-bearing vein from which the existence of greater ore values was inferred by the mining claimants. However, in both instances, the mining claimants failed to establish a basis for even an estimate of the quantity of ore of any particular quality that might be found on the claims, and, in the absence of such a foundation, it was found that the attempt to infer the existence of a valuable mineral deposit from the sampling of exposed areas of mineralization was unacceptable evidence of the discovery of such a deposit.

on that question. Cf. United States v. Pressentin, 71 I.D. 447 (1964), aff'd Pressentin v. Udall, Civil Action No. 1194-65 (D.C. D.C. filed March 19, 1969). Thus, we reject the contestant's argument that only "measured ore," as defined by the Atomic Energy Commission, may properly be considered in determining whether or not there has been a discovery.

Insofar as appellants' claim of a discovery is based upon the supposed existence of 300,000 tons of low-grade ore, we find the evidence unsatisfactory. This body of "potential" ore, if it exists, quite clearly is undiscovered, and the evidence of its existence falls within that category of geologic inference which is not acceptable as a substitute for the physical exposure of the ore. It is unnecessary, therefore, to evaluate the testimony relating to the feasibility of mining and processing such ore. The validity of the claims, when, is dependent entirely upon the inducement afforded by the 33,000 tons of "indicated" and "inferred" ore.

However, we are not called upon here to decide whether or not there are 33,229 tons of .21 percent ore on the Red Bluff claims. In fact, the ultimate conclusion of the Hearing Examiner and of the Office of Appeals and Hearings did not turn upon the question of whether or not there are 33,229 tons of .21 percent ore on the claims. Rather, the conclusion that no discovery had been shown was premised upon a finding that it had not been shown that 33,229 tons of ore of that quality in that particular location would justify an attempt to develop a mine. If that premise is sound, the question as to whether or not the ore exists is, in this case, of little consequence. Assuming that that ore exists, we now consider the feasibility of extracting it.

Witnesses for the contestee presented three different proposals for development of the claims. Relying on estimated costs ranging from $11.00 to $28.50 per ton of ore mined, and assuming mill recovery of 90 percent of the U_3O_8 present if the ore should be shipped elsewhere for milling or 85 percent if it should be processed at the site, contestee's witness, Lowell, calculated that the selling price required to break even on a mining operation would be (1) $2.60 per pound of U_3O_8 produced if the ore were sold at the Cutter, Arizona, buying station under the terms of Atomic Energy Commission Circular 5, (2) $7.50 per pound if the ore were transported by truck and rail freight to the mill at Bluewater, New Mexico, or (3) $6.10 per pound if the ore were processed to a concentrate by a proposed leaching method at the mine site (II Tr. 181-185; Ex. Q-Q). 13/ In

13/ The east block, according to J. W. Still, would require an underground mining operation at an estimated cost of $9.00 per ton, while the west block probably could be mined by open pit methods,

addition to recovery of the 33,229 tons of ore included in the Atomic Energy Commission estimate, the contestee proposed to mine, and to process by heap leaching, the 300,000 tons of potential .065 percent ore estimated by Arthur R. Still to be present on the claims (see II Tr. 118-129).

Inasmuch as the Cutter buying station closed in 1957 (see Ex. 20), the first proposal quite obviously has no merit. It does not, in fact, appear that the sale of ore to the Cutter buying station was proposed as an available alternative. Rather, it would appear that the computation of the cost of operations with sale of the ore at Cutter was made solely for the purpose of reconstructing the original mining operation at the Red Bluff claims (see II Tr. 181). In other words, it affords a basis for comparison of the costs of the other two proposed methods.

Lowell admitted that current uranium prices would not permit a profitable operation with mining costs of $7.50 or $6.10 per pound of U_3O_8 recovered, but, on the basis of projected uranium price figures, he believed that ore could be profitably mined and shipped to Bluewater, New Mexico, by 1970 or 1975, depending on the rate of rise in the price of uranium (II Tr. 183-184), 14/ and that it might be profitably mined and processed by leaching at the mine site by 1969 (II Tr. 185).

As with their estimates of ore reserves, the differences between the recommendations of the contestant's expert witnesses and those of the contestee appear to be considerably greater in form than in substance. Although four expert witnesses for the contestee recommended further expenditures on the claims, and two of the witnesses explicitly recommended the expenditure of time and money to extract the ore found thereon, none recommended it upon the basis of existing economic conditions. In fact, the real meaning of their recommendations is somewhat uncertain.

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fn. 13 (Cont.)
with a one to one ore-waste ratio, at a cost of $1.25 per ton of material or $2.50 per ton of ore (II Tr. 158-161). Cost of construction of a leaching plant at the site was estimated at $300,000, to be amortized at the rate of approximately $9.00 per ton of ore (II Tr. 198-199; Ex. Q-Q).

14/ At the first hearing, the contestee's witness, Carl Larsen, frankly acknowledged that, assuming the existence of 32,000 tons of .22 percent ore, with shipment of the ore to the mill at Tuba City, Arizona, under the terms of the Atomic Energy Commission schedule (which included a freight allowance of $6.00 per ton), costs of mining and hauling would leave "too damned close a margin to do anything" (I Tr. 137).

J. W. Still "would certainly advise the client it would be worth spending some further money on, without any question" (II Tr. 162). But was he recommending the expenditure of money to extract the ore, or was he merely recommending that the expenditure be made "to get some specific test work done on this leaching and to do some work on that little knoll on the west side to try to pin down how large a tonnage block you may have there of this real low grade stuff" (Id.) and that any further steps be dependent upon the results of that work? It appears likely that the latter was the intended meaning. Lowell stated that he "would definitely recommend" that a client who owned these particular properties expend his time and money and effort to extract the ore that is presently on the properties (II Tr. 192). While he recommended the drilling of a number of holes to obtain quantitative data on low-grade material and the collecting and metallurgical testing samples of high-grade ore, he was explicit in his testimony that, even without additional facts, it would be reasonable for a person "to pursue his time, effort, in developing this mine" (II Tr. 193, 200). But when would it be reasonable to spend time and effort to develop a mine? As we have already observed, it is reasonably clear that Lowell was contemplating the possibility of profitable operations under different economic conditions from those prevailing at the time of the hearing in 1966, perhaps those which would be found by 1970 or 1975. Arthur R. Still testified in much the same vein that he "certainly would" advise the mining claimant to expend further money and effort in the extraction of the ore from the Red Bluff claims, adding that the ore reserves on the claims "will certainly be exploitable in the relatively near future as the uranium prices increase in the free world market" (II Tr. 379-380). Kinnison was the most cautious of the contestee's witnesses in his recommendations, suggesting, after calculation of the ore reserves, mill tests, an estimate of mining costs by a mining engineer, and an estimate of the milling facilities needed and amortization thereof, "all [to be used] to come to a conclusion as to the profit, if any, or the yield on the capital investment required" (II Tr. 101).

Witnesses for the Government, on the other hand, were quite negative in their recommendations. Pardee stated that if he were employed as a mining consultant to examine properties like the Red Bluff claims he would advise his client not to spend any more time and money in an effort to make a paying mine (I Tr. 45; II Tr. 65-66). Ashby stated that he would recommend to a client that he "not put any money into this proposition with the hope of developing a paying mine," asserting that he didn't think "it's something that a prudent man would have anything to do with" (I Tr. 74). Even so, Pardee agreed that there is an increasing use of uranium in various fields and that there should be a good market in the future for uranium ores (I Tr. 54), and he acknowledged that "not too far in the future there may be" ore bodies on these claims that will be economically feasible to

mine (II Tr. 245). Moreover, Ashby accepted the test data "as showing that there is some very important uranium mineralization in the area" (II Tr. 319-320).

In essence, then, witnesses for both parties have recognized a possibility that these claims may someday be utilized again as a source of uranium ore. The contestee's witnesses, viewing that possibility most optimistically, have taken the position that the ultimate justification for extracting the ore is a veritable certainty, the only question being one of time, while witnesses for the contestant, being of the opinion that there is no present justification for attempting to develop a mine on the claims, have not deemed it necessary to speculate in detail on the likelihood that changed economic conditions may alter the probability of successful development of the claims. The critical question at this point is how immediate, and how certain, must be the inducement to spend money in the development of a mining claim in order to establish the present validity of that claim?

This question was the subject of extended discussion in United States v. Estate of Alvis F. Denison, 76 I.D. 233 (1969). In that case, after first considering whether there are two distinct standards, a "present marketability" test to be applied in the case of nonmetallic minerals of widespread occurrence and a test of "future marketability" to be applied in the case of metallic minerals of intrinsic value, and concluding that there are not, it was stated that:

> * * * In speaking of a "reasonable prospect of success in developing a valuable mine," the prudent man rule necessarily invokes a time concept. But it does not prescribe a time schedule as to when minerals might be extracted or sold. For example, the Department has never insisted, in applying the marketability test, that a claimant must show that he is actually mining and selling minerals at a profit when the validity of his claim is challenged. "Reasonable prospect of success" does not have such a restrictive connotation. On the other hand, while it has room for the future, it does not embrace a vague distant future. Thus, within the ambit of the prudent man rule, the terms "present marketability" and "future marketability" are relative. For example, suppose that the Government, instead of terminating the manganese purchase program * * * had merely announced a suspension of purchases for 30 days. It would not have been inaccurate to characterize manganese deposits from which sales had been made up to August 5, 1959, as still being "presently marketable." It would also not have

been inaccurate to say that those deposits had a "reasonable prospect of a future market." The use of one term or the other does not express mutually exclusive concepts. The critical determination is whether, based on present facts, there is a reasonable prospect of success.

* * * In * * * [United States v. Theodore R. Jenkins, 75 I.D. 312, 318 (1968)] the test of what constitutes a discovery of a valuable mineral deposit as to such deposits was set forth by the department as follows:

> * * * The test is not whether there is an operating profitable mine, or whether a prudent man at some time in the future under more favorable circumstances might expect to develop a profitable mine, but whether under the circumstances known at the time a profitable mine might be expected to be developed. This expectation must be based upon present considerations as to the value of the deposit as determined by the extent of saleable mineral within it, and the market price for the mineral, and by comparing the expected costs of the mining operation.

As the Jenkins case * * * further indicates the expectation of future remunerative market prices must be based upon rational considerations, including normal market ups and downs, and not upon conjectures and speculation as to possible sharp increases in market prices due to unpredictable changes in world political and economic conditions, or to a Government subsidy, or to the unforeseen lowering of costs because of a dramatic technological breakthrough. Thus, the expectation of future profitability under the prudent man test must be based upon present economic circumstances known then and not upon mere speculation as to possible substantial changes in the market place.

76 I.D. at 239-240.

The recent record of uranium prices substantiates the Bureau's skepticism that a prudent man would be justified in developing a mine in the reasonably foreseeable future. A recent publication of the United States Bureau of Mines notes that the price of uranium has been declining steadily since 1953, that lower prices will

prevail through the early 1970's, and that prices will rise slightly during the late 1970's and early 1980's. 15/

It states:

> The most important form of primary uranium that moves in commercial channels is the oxide of uranium (U_3O_8) known as "yellow cake." Prices of uranium oxide in terms of uranium content and in constant 1968 dollars fluctuated from a high of $ 19.96 per pound in 1953 to an AEC price schedule of $9.43 ($8 per pound of U_3O_8) in 1968. Even lower prices are being offered by private firms. As shown in figure 2, prices of uranium after a substantial reduction are expected to rise only slightly until the late 1970's during a time of transition for the uranium industry. Although the industry has benefited from a "stretchout procurement program" by AEC, the substantially lower production levels of the late sixties and early seventies compared with the early sixties is expected to put a downward pressure on near-term uranium prices. Even though the probable introduction into the commercial market by AEC of 42,500 short tons of surplus uranium will buffer the rise in prices during the late seventies and early eighties, uranium prices will advance a little faster during this time and then climb sharply and steadily during the remainder of the century, reaching an estimated level of $20.00 ($17.00 per pound U_3O_8) in the year 2000.

In summarizing future supply-demand relationships, the same article notes:

> Annual demand uranium requirements are expected to rise from the current level of 2,700 short tons in 1968 to a range of 61,000 to 69,000 tons of uranium in the year 2000. * * * Although a significant reduction from the 1968 price of $9.63 per pound ($8.00 per pound U_3O_8) is expected in the early 1970's due to a slackening in domestic demand, the long term price of uranium will depend upon the availability of low cost reserves, foreign imports, and improvements in mining production and exploration technology.

15/ "Uranium," Joseph A. DeCarlo and Charles E. Shortt, Bureau of Mines Bulletin 650, Mineral Facts and Problems, 1970 Edition, 219, 230, 231. Official notice is taken of this and other Departmental publication cited below. 43 CFR 24(b).

The appellants have called our attention to a speech delivered Wilfred E. Johnson, Commissioner, Atomic Energy Commission, on October 13, 1971, to the American Mining Congress on "The Status of the Uranium Producing Industry." Commissioner Johnson said that utilities and reactor manufacturers had already contracted for a large part of their needs through 1975, leaving little opportunity for additional orders, and that, as a result, "the present uranium market is soft, and there is virtually no spot market." He noted that reserves had been increasing faster than current requirements, that exploration had slackened because of the slack near-term market and softening of uranium prices. He forecast that the present soft uranium market will be replaced by a strong and rising market in the late 1970's and early 1980's followed by a sharply declining market once breeder reactors become a major factor in nuclear fuel requirements. He noted that there were substantial foreign reserves of low cost uranium and that the AEC had surplus uranium which must be disposed of without disrupting domestic production. He based his suggestions for maintaining and increasing domestic production to meet future needs on the assumption that demand for uranium would begin to grow in the late 1970's.

In reviewing the price experience of uranium in 1970 another Governmental publication 16/ said:

PRICES AND SPECIFICATION

> During fiscal year 1970 (ended June 30, 1970), the AEC purchased 4,010 tons U_3O_8, valued at $45,954,000, at an average price of $5.73 per pound. For the remaining half of the calendar year, the AEC purchased an additional 1,295 tons U_3O_8, valued at $14,416,000, at an average price of $5.57 per pound. These purchases marked the termination of the AEC's uranium-procurement program, which ended on December 31, 1970. Since inception of the program in 1948, the AEC purchased 173,665 tons U_3O_8 at an average price of $8.52, for a total value of nearly $3 billion. AEC purchase prices during 1970 were based on the following formula: $1.60 per pound, plus 85 percent of allowable production costs per pound during the 6-year period from 1963 through 1968, with a maximum price of $6.70 per pound.
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> According to the Nuclear Exchange Corp., private prices for 1970 delivery ranged from $6.00 to $6.20 per

16/ Minerals Yearbook, 1970, Vol. 4 Metals, Minerals, and Fuels, United States Department of the Interior, Bureau of Mines, "Uranium", 1139, 1146.

pound U_3O_8, but a new level at about $6.30 per pound seemed to be emerging. For purchases 3 to 5 years ahead, quotations are listed at gradually increasing prices until the $8-per-pound rate is reached, near 1976. (Footnotes omitted.)

The AEC, which until 1969 was the major purchaser of uranium concentrate, lists the average price per pound U_3O_8 as follows: 17/

Fiscal Year		Fiscal Year	
1955	$12.25	1964	$8.00
1956	11.51	1965	8.00
1957	10.49	1966	8.00
1958	9.45	1967	8.00
1959	9.12	1968	8.00
1960	8.75	1969	6.99
1961	8.50	1970	5.74
1962	8.15	(first half) 1971	5.54
1963	7.82		

Although there is not an open market price for U_3O_8, the Bureau of Mines estimates that the private price is now in the $6.20 per pound range.

Since the prices quoted are not in terms of constant dollars, a price of $ 6.20 in 1973 is higher than it would be if quoted in terms of constant dollars as of 1966 or 1968.

Thus the price for U_3O_8 has not approached that needed to make operation of the claims even marginally feasible. The economic factors needed to justify development of the claims still do not seem to be realizable in the reasonably foreseeable future. It is now six years since the hearings were held and the estimates place the late 1970's as the earliest years in which there may be an upturn in the price of U_3O_8. The appellants have held the claims from 1956 to the present without production or development. The goal of a price of U_3O_8 which would warrant resumption of mining continually recedes as one advances towards it. 18/

17/ Statistical Data of the Uranium Industry, January 1, 1972. Atomic Energy Commission, Grand Junction, Colorado at 8.

18/ The forthcoming chapter of Uranium in the 1971 Minerals Yearbook states:

"URANIUM

"By Walter C. Woodmansee

"A continuing domestic and world uranium surplus prevailed during 1971. Domestic U_3O_8 mine and mill production was at a rate

Not only is the possibility of future increases in price too conjectural to validate a claim that does not now justify further expenditure of money and labor, but the past history of the claims is illuminating.

As we have already seen, these claims were actually operated 15 years ago as a mine. We think that no prudent man would ignore the history of that operation in evaluating the evidence relating to the remaining ore reserves.

Atomic Energy Commission records, to which reference has previously been made, show deliveries of ore from the Red Bluff claims to Commission buying stations totalling 3,385.06 tons during the years 1953 to 1956 (Ex. 21). Those records also reflect a decline in the quality of the ore delivered from .41 percent U_3O_8 in the ore delivered in fiscal year 1953 to .10 percent in that delivered in fiscal year 1956 to the buying station at Globe (Cutter), Arizona. This fact, by itself, suggests the validity of Pardee's opinion that the west block has been mined out.

If Lowell's computations are valid, .21 percent ore delivered to the Cutter buying station under the terms in effect when that station was in operation would have brought a price of approximately $5.00 per pound for U_3O_8 produced at a cost of $2.60 per pound, a return of $1.92 for every dollar spent in mining the ore. (II Tr. 181). In order to receive a return under the proposed mining-site processing of the ore, it would be necessary for the price of U_3O_8 to rise to $11.71 per pound while production costs

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fn. 18 (Cont.)
similar to 1970. Ore reserves continued to increase although exploration for uranium was declining. Fewer mines were in operation. One new mill went on stream, and three other mills were scheduled for completion in 1972. A problem facing the industry was providing incentives for increased exploration for discovery of new reserves that will be needed in the future.

"The year 1971 was the first full year that the U_3O_8 market was entirely private. The Atomic Energy Commission (AEC) terminated its U_3O_8 purchasing program at yearend 1970 after acquiring U_3O_8 valued at nearly $3 billion since 1948, including a large stockpile. The AEC proposed a schedule for disposal of this stockpile over a period of several years, but industry response was negative.

"The domestic U_3O_8 price remained soft under conditions of excess supply. The estimated average domestic price, per pound, was in the $6 to $6.50 range. Prices in the world market apparently were lower. New mines were under development in Australia, Canada, and the Territory of South-West Africa." [Footnote omitted.]

remained stable. Why then did operations at the Red Bluff claims terminate more than a year before the Cutter buying station closed? 19/

At the 1963 hearing, Mrs. Larsen attempted to answer that question by stating that the highest grade of proved ore lay beneath the creek, that it would take about three months, and an expenditure of approximately $30,000, to get ready to take that ore out, that, if there had been assurance that the Cutter buying station would stay open for a year, an estimated 15,000 tons of ore of .25 percent quality and better could have been delivered during that year but that Atomic Energy Commission officials would not guarantee to keep the station open for that period or to give more than three months' advance notice of its closing and that she and her husband considered the risk too great. (I Tr. 115-116)

Appellants seemingly would have us believe that the same prudence which in 1955 precluded the expenditure of $30,000 in mine development without positive assurance of a continuing market at a guaranteed price would now be conducive to the expenditure, in addition to the cost of mining the ore, of ten times that amount for the construction of a plant in which to process the ore that may be mined with less assurance of the market price for the product and with a prospect, at the best, of a substantially smaller margin of return on the required investment. Moreover, they seemingly would have us find that, although the Atomic Energy Commission concluded in 1957 that the estimated 100,000 tons of uranium ore discovered in the Globe area would not justify the construction of a mill, the same factual data relating to the Red Bluff claims, which was available to the Commission when it

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19/ The Cutter buying station was closed on June 30, 1957, two years after it opened, because, according to Atomic Energy Commission public announcement No. 192 of June 10, 1957, "the ore production and the ore reserves in the district did not indicate any reasonable prospects for an economic milling operation" (Ex. 20). A survey undertaken by the Commission's Grand Junction Operations Office just prior to the announcement resulted in findings, inter alia, that no significant new discoveries had been made in the district during the preceding six months, that total ore reserves in the district were less than 100,000 tons, including the 23,000 tons delivered to the buying station during the preceding 23 months in which it was in operation, and that, on the basis of then current information, continued operation of the buying station would result in additional losses to the Government with no reasonable prospects of any economic uranium production. The Commission also noted that no private company had shown an interest in, or had submitted a proposal for, the construction of a mill.

made that determination, would now suggest that such a mill is feasible for the recovery of only a fraction of the ore then known to occur in the district. We believe that appellants' optimism is somewhat greater than that likely to be engendered by the same evidence in the mind of the "man of ordinary prudence," whose views we seek to ascertain.

If, as appellants now argue, the mining claimant "would be imprudent if she did not invest more labor and means to mine the 33,000 tons of ore containing 21% U_3O_8 and the more than 286.7 tons of ore containing .40% U_3O_8," we should be compelled to find that the contestee is indeed imprudent, for there is no evidence in the record that any effort has been made since 1955 or 1956 to mine any of the ore found on the claims, to explore further the formations occurring on the claims, or to take any of those steps recommended by the claimant's witnesses to determine the feasibility of the proposed mining operation. Thus, while paying lip service to the counsel of experts who recommended positive steps toward development of a mine, she has faithfully followed the advice of the Government's witnesses whose competency to advise in such matters she stoutly denies. A more realistic response to appellants' assertion is that the mining claimant's actions, rather than her declarations, are, in our opinion, demonstrative of what a prudent person would do in the circumstances outlined here. 20/

We do not question that there is a possibility that the Red Bluff claims may someday become valuable as a source of uranium ore. Depletion of known ore reserves or the discovery, within the same mining district, of uranium ore in sufficient quantity to justify the construction of a mill may ultimately make the mining of these claims economically feasible. Whether this development will occur in 5, 10 or 50 years, or whether it will occur at all, is beyond our ability to foresee. But until there is a change in circumstances beyond any which can presently be forecast with any degree of certainty, we do not believe that a prudent person would make the capital outlay required for further development of the Red Bluff claims. The most that we can find, and, when the testimony is carefully analyzed, all we believe appellants have actually claimed, is that a prudent person would be justified in

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20/ We believe that there is also some significance in the fact that the Sierra Ancha Mining Company, which reportedly shipped about 2,800 tons of ore from the claims, entered into a contract to purchase the claims in 1954, which contract was subsequently nullified, and that the Uranium Corporation of America obtained an option on the property in 1955 which it failed to exercise after exploring the west block with 9 diamond drill holes and the east block with 27 diamond drill holes and 11 wagon drill holes (I Tr. 108-109; Exs. A, G, X-1).

holding onto these claims with a reasonable hope or expectation that someday their development as a mine may prove to be economically feasible. This is nothing more than the "holding and prospecting" which the Supreme Court, in Cole v. Ralph, 252 U.S. 286, 307 (1920), held were never intended to create a right to patent. Accordingly, we concur in the determination of the Hearing Examiner and of the Office of Appeals and Hearings that Mrs. Larsen has established no rights against the United States which would entitle her to patent to the three mining claims. Her application for patent was, therefore, properly rejected, and the claims were necessarily declared to be null and void. United States v. Kenneth F. and George A. Carlile, 67 I.D. 417 (1960).

With respect to the two mill site claims, the evidence developed at the 1966 hearing affords no basis for altering the finding in our decision of September 13, 1965, that no evidence at all had been produced that the mill sites are being used for mining or milling purposes and that there clearly is no mill on either of them. Appellants' arguments in their current appeal do not suggest otherwise. For the reasons stated by the Office of Appeals and Hearings, the mill sites, also, were properly held to be invalid. See United States v. Jesse W. Crawford, A-30820 (January 29, 1968); United States v. Frank Coston, supra; United States v. W. E. Polk, A-30859 (April 17, 1968). 21/

Therefore, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decision appealed from is affirmed.

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Martin Ritvo, Member

We concur:

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Edward W. Stuebing, Member

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Joseph W. Goss, Member

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21/ At the 1963 hearing an attempt was made to show that the mill sites were being utilized for mining purposes in connection with the iron mining activities of Howard M. Seitz on other nearby mining claims (I Tr. 82). However, further questioning disclosed that Seitz had utilized a portion of the Red Bluff No. 6 mining claim, rather than the mill sites, for the storage of iron ore which he mined from claims approximately 2 miles from the Red Bluff claims (I Tr. 84-86).